

INDEX

- Accidents, 25–27, 267–269
- AdBlue, 29
- Advertising, 143
- Agriculture, 45, 175
- Air pollution, 7, 22, 27–29, 33, 58,
153, 232–234, 261
- Air traffic, 204
- Aisin, 143
- Alexa, 207–208
- All-terrain vehicles, 29
- Amazon, 85, 101, 105, 142, 162,
215, 287
 - capitalisation, 262
 - in mobility-as-a-service, 163
 - in mobility market, 217–218
- American Middle Class, 19–20
- American Society for Civil
Engineers (ASCE),
35–36
- Ant-colony algorithms, 89
- Apple, 101, 142–143, 215, 218,
262
- Apple's CarPlay, 225
- Apps, 108, 129
 - design, 134–136
 - navigating mobility landscape
with, 129–134
 - or steering wheel, 136–138
- Aptiv, 140
- Archetypes, 245–247
- Arrival, 161
- Artificial intelligence technologies
(AI technologies), 93,
139, 160, 197
- Asia, 63–64
- Aurora, 53, 140, 174
- Australia, 63–64
- Automakers, 41–42, 81–82, 84–85,
97–101, 105, 140–141,
205–206, 208, 215–219,
223–224, 262
- Automobile, 19–20, 37–38
 - industry, 288
- Automotive industry, 40, 82, 178,
214–215, 222–223,
260, 262, 283–284
- Autonomous driving, 86–87,
89–90, 157
 - basic idea, 90–92
 - control unit, 92–94
 - digital maps, 94–95
 - planning, 95–96
 - sensors, 92
- Autonomous mobility, 157
- Autonomous shuttles, 63, 141,
159, 164, 177, 224,
253, 255, 271
- Baby boomer generation, 289
- Battery cells, 99
- Battery-as-a-Service options, 192
- BBC, 85
- Bedrock, 74
- Bestmile, 141
- Bicycles, 74, 93, 122, 129–131,
137, 230, 238–241
- Bike-sharing, 137
- Bird, 74, 144, 237–238
- BlaBlaCar, 125–126
- Boaz Bikes, 74
- Boston Consulting Group, 112, 245
- Braess' paradox, 39, 65, 108
- Buses, 8–10, 14, 18, 117, 122–124,
133

- 'Business as usual' transportation policy, 56
- Business models, 173–176
 - change requires effort, 213–216
 - ecosystem, 222–226
 - on road in pods and shuttles, 219–222
 - viewpoint, 216–219
- BYD, 99
- C40, 68–69
- Cameras, 92–93
- Car(s), 37–40, 55–58, 122, 205–206 (*see also* Autonomous driving)
 - car-centric cities, 246, 252
 - car-free zones, 67
 - licence auctions, 236
 - rental, 100, 119, 129–130, 133, 141–142
 - sharing, 101, 108–111, 125, 130, 214
- Carbon dioxide emissions, 28–29, 98, 269
- Carvolution, 114
- CATL, 99
- Central hubs, 154
- Change drivers, 85–87
- Chicago, workers in, 12–13
- Children and traffic, 58–59
- China's Ministry of Industry and Information Technology, 281
- Cities, 45, 59–60, 64, 107, 245
 - Asia and Australia, 63–64
 - bursting at seams, 48–52
 - C40, 68–69
 - car-free zones, 67–68
 - councils, 151
 - as engines of progress, 52–53
 - Europe, 61–63
 - North America, 64–67
 - planners, 64
 - of play, 127
 - from rural to urban, 45–48
 - of speed, 127
 - Vision Zero, 68
- CityMapper, 131, 142
- CityMobil, 158
- CleverShuttle, 108
- Clyde, 214
- CNN, 85
- Coffs Harbour in Australia's New South Wales, 177
- Combustion, 270
- Commuters
 - in New York, 11–12
 - shopping in autonomous pod, 172
 - traffic, 64–65
- Congestion, 265–267
- Connected automotive world, 101–105
- Continental, 81, 140, 143
- Control unit, 92–94
- Conventional automotive engineering, 216
- Convertibles, 141
- CountryCab, 77
- COVID-19 pandemic, 137, 179–180, 216, 229, 231, 233–234, 236, 277, 282
- Crash industry, 33, 222
- Culdesac, 65
- Customer experience, 210, 241
- Daegu's Smart City initiative, 235
- Delivery services, 162–165
- Density, 230
- Denso, 81, 143
- Detroit market, 74, 87
- Didi, 86–87, 109–110, 142–143, 179, 217–218
- Digital maps, 94–95
- Disability, 8, 275
- Distance, vehicle, 266
- Driverless pods, 158
- Driverless vehicles, 157, 160–161, 176–179, 267, 270
- Driving, 149
- E-bikes, 72, 84, 131, 144, 149, 151, 153, 239–240, 247, 250, 252
- E-scooters, 62, 74, 131, 144, 149, 151, 153, 237, 240, 247, 250, 252
- EasyMile, 160

- Ecosystem, 222–226
- Electric mobility, 96, 98, 100, 105
- Electric motor, 97–99
- Electric vehicles
 - advent of, 100
 - autonomous driving in, 83
 - charging station for, 62, 222, 235
 - development, production, and marketing of, 98
 - measuring electromagnetic radiation levels in, 105
 - registrations, 98
 - SUVs in, 98
- eMaaS, 132
- Emissions, 27–29, 269–270
- Environmental model, 92–93, 95
- Europe, 61–63
- European Green Deal, 138
- Experience time, 198–199

- Facebook, 101, 214, 262
- Federal-Aid Highway Act, 38
- Finnish city of Helsinki, 62
- Fleet management, 84, 141
- Food
 - delivery service, 162
 - transport, 159
- Ford, 19–20, 143, 164
- Ford, Henry, 19, 81–85, 97, 139, 213
- Fraunhofer Society, 261
- Free-floating approach, 109
- Freedom of movement, 9, 290
- Futurama City model, 39

- German Road Traffic Ordinance, 204
- Gett, 2174
- 2GetThere, 160
- Global Mobility Service, 143
- GM, 143, 169
- Google, 13, 53, 85, 94, 101, 132, 142, 175, 208, 215, 218, 262, 287
- Google's Android Auto, 225
- GoogleMaps, 132
- Grab, 86–87, 132, 143
- Green Class, 155–156
- Greenhouse gas emissions, 28, 68

- Gross domestic product (GDP), 16, 33–34, 48, 60, 68, 111, 217, 282
- Ground-level streets, 64

- Hamburg, 132
- Helsinki, 129, 232–233
- HERE, 94
- HereMobility, 132
- High-density metropolises, 247
- Hopes, 185–187
- HUB CHAIN in Germany, 73
- Hubs, 154–156
- Human–machine interface, 206–207, 210
- Hyundai Motor Group, 179

- i-Cristal self-driving vehicle, 160
- iMove, 131
- Incentives, 243–245, 286–287
- Inclusive mobility, 279–280
- Information and communication technology (ICT), 171, 224
- Innovative approaches, 210–211
- Inrix Global Traffic Scorecard, 25
- Intel, 140, 173–174
- Interior design of self-driving pods and shuttles, 211
- Intermodal transportation, 150
- IoMob, 131
- Itaquaquecetuba, 17
- ITNAmerica, 73

- Jelbi app, 131, 239
- Jobs and prosperity, 259
 - mobility, 262–263
 - stakes, 259–261
- Johnson Controls, 143
- Joy, 21–22
- Juicar, 214
- Justride, 131

- Katy Freeway, 64–65
- Kayasehir, 73

- Land use, 30–32
- LG Chem, 99
- Licences, 241

- Lidar, 92–93, 283
- Light rail vehicles (LRVs), 150
- Light-emitting diodes (LEDs), 205
- Like2drive, 214
- Lime, 74, 144, 237–238
- Los Angeles, 18, 68
 - greenhouse gas emissions in, 28
 - metropolitan region, 72
 - public transportation in, 51
 - traffic jams in, 23
- Luminar, 140
- Lyft, 74, 86, 109–110, 135, 217, 241, 276
- MaaS4EU, 131
- Machine learning, 93, 139, 195
- Machines, 206–208
- Made in China 2025, 281
- Magna, 81, 143
- Mapping, 96
- Marina Grove Retirement Village
 - in Toormina, 177
- Marine traffic, 204
- Masdar City, 64
- Melbourne, 64
- Mercedes, 143
- Metropolitan regions, 52
- Mexico City, 13–16
- Michelin, 143
- Micro-mobility, 28, 35, 83, 134, 144, 150, 153, 230, 236–240
- Migration to megacities, 49
- MinRejseplan app, 131
- 15-minute city, 231–233
- Mobileye, 93, 122, 140, 160, 164, 173–174, 178, 224
- Mobility, 3–8, 11–20, 35, 117, 262–263, 275–277, 285, 289–290
 - city changes gear, 278–279
 - concept, 145–147
 - cost, 33–35
 - criticism, 6
 - designed for people, 286
 - as form of social interaction, 204–205
 - fundamental rethinking, 5
 - hubs, 154–156
 - as human right, 8–10
 - idea of developing, 77
 - inclusive mobility, 279–280
 - platforms, 108, 141–142
 - revolution, 285
 - services, 117, 141
 - sufficient, 76
 - system, 65
 - well-functioning, 14
- Mobility-as-a-Service (MaaS), 7, 22, 42, 57, 69, 76–77, 117–121, 139, 149, 167, 243, 265, 277, 286–288, 291–292
 - age of, 100
 - aim, 149
 - benefits, 122–124
 - contours of, 42
 - customer benefits, 288
 - drawbacks, 259
 - with electric, self-driving vehicles, 59
 - expectations for, 193–196
 - idea of, 158
 - initiatives, 281
 - investing in, 171
 - key aspect, 130
 - launching, 114
 - and pandemic, 179–181
 - potential trends in, 174
 - sharing, 124–126
 - space and time efficiency
 - of modes of transportation, 123
 - technology for, 96
 - in United States, 124
 - urban utopias, 126–127
- MobilityX, 131
- Model T, 19, 97
- MoGo Bikes, 74
- MOIA, 108
- Moovit app, 134–135, 142, 173, 217
- Multimodal transportation, 66, 114, 129, 149–154, 281–282
 - mobility hubs, 154–156
 - systems, 260
- myCicero, 132
- MyCorridor, 131
- myTaxi, 108

- National Highway Traffic Safety Administration (NHTSA), 26–27, 33, 267
- Nauto, 143
- NaviGogo, 131
- Navya, 160
- Neckermann Strategic Advisors, 83–84
- Netflix, 85, 101, 105, 142, 215, 218, 225–226
- New virtual world, 196–198
- New York, 87, 107
 - City Subway, 111
 - commuters in, 11–12
- Nitrogen monoxide, 29
- North America, 64–67
- Nuro, 160
- Nvidia, 140, 143
- Oliver Twist* (Dickens), 197
- On-demand bus services, 63
- Open Streets, 233–234
- Organization for Economic Cooperation and Development (OECD), 16, 55
- Ottawa, 65
- Otto, 174
- Panasonic, 9
- Paris, 87, 233
 - autonomous vehicles company in, 93
 - BlaBlaCar established in, 125
 - micro-mobility in, 238
 - mobility in, 107
 - notion of reinventing, 232
- Paris Agreement, 53, 68, 138, 285, 291
- Paris Climate Agreement, 53
- Parking lots, 55–58
- Parking spaces, 57
- Particulate emissions, 29
- Particulate matter (PM), 28
 - PM 2.5 standard, 28–29
- Pearl River Delta, 49–50
- Pedestrian zone, 67, 121, 180, 277–278
- People with disabilities, 8–10, 66
- Phoenix, 87, 177, 282
- Piazze Aperte (Open Plazas)
 - project plans, 234
- Pittsburgh, 38, 53, 164, 282, 288
- Platooning, 175
- Pods and shuttles, 146, 150, 157
 - car, 157–162
 - delivery services, 162–165
- Pontevedra, 121, 278–279
- Pony. ai, 140
- Poverty, 8, 275
- Private car sharing companies, 236
- Private transportation, 124, 146
- Prosperity, 11
 - commuters in New York, 11–12
 - Ford and American Middle Class, 19–20
 - Maria and Olivia, 16–19
 - Mexico City, São Paulo, and Switzerland, 13–16
 - workers in Chicago, 12–13
- Public transit, 18
- Public transportation, 17, 124
- Radar, 92–93
- Radio City Music Hall, 135–136
- Rail network, 14, 16, 112
- ReachNow, 131–132
- Residents, 11, 14, 51–52, 59–60
- Ride-hailing, 66, 76, 86, 108, 109–112, 125, 133–134, 142–143, 179, 194, 217
- Ride-pooling, 86, 108, 110–112, 125, 134, 142
- Ride-sharing, 65, 86, 108, 110–112, 125, 188
- Rinspeed's Variable Shuttle, 159
- Roads, 55–58
 - traffic, 204
- Robotaxi service, 160
- Royal Hill Park housing
 - development in Surrey, 276
- Rural areas
 - rural lifestyles, 74–77
 - suburbanisation, 71–74

- Samsung, 99
- São Paulo, 13–16
- Scandinavian cities, 62, 233
- Scenarios, 249–252
- Scoop, 74
- Scooters, 122, 144
- Sedans, 141
- Self-driving cars, 90, 145
- Self-driving electric cars, 57–58
- Self-driving pods and shuttles, 7, 174, 199, 211, 243
- Self-driving vehicles, 85, 122, 140–141, 154, 157, 160, 174, 248–249
- Self-evident truths for auto industry execs, 40–42
- Sensing, 96
- Sensor systems, 83, 92
- Shanghai, 87
- Shanghai Metropolitan Region, 49
- Shared mobility, 112
- Shared transportation, 124
- ShareNow, 109
- Sharing, 86, 108, 113–114, 124–126
 - diverging views on, 114
 - traffic reduction by, 107–112
- Shift2MaaS, 131
- Silicon Valley of mobility industry, 153
- Silicon Valley of the East, 53
- Simulation, 248–249
- SIXT, 109
- SkedGo, 131
- Smartphones, 114, 122, 176, 198, 225, 289
- Social cohesion, 62
- Social costs of mobility
 - accidents, 25–27
 - emissions, 27–29
 - infrastructure, 35–36
 - joy and sorrow, 21–22
 - land use, 29–32
 - mobility cost, 33–35
 - traffic jams, 23–25
 - vehicle usage, 22–23
- Social prestige, 130, 137
- Softbank, 143
- Sorrow, 21–22
- South Korea, 235
 - mobility in, 235
 - pilot connected and autonomous driving in, 281
 - traffic situation in, 221
- Space, 271–273
- Spanish city of Pontevedra, 278
- SPLT, 74
- Sport utility vehicles (SUVs), 29, 38, 141, 216
- Squares, 233–234
- Stakes, 259–261
- Star Wars, 196
- Starbucks, 85, 102, 143, 287
- Stationary car sharing, 109
- Suburbanisation, 71–74
- Suburbs, 72–73
- Subway, 133
- Sunshine State, 177
- Super-islands, 233
- Superblocks, 233–234
- Suppliers, 84, 84
- Supply chain disintegration
 - change drivers, 85–87
 - changing face of value added, 81–85
- Switzerland, 13–16
- Tablets, 225
- Taxi, 133
 - industry, 240
- Teams, 4
- Technical supervision, 141
- Tel Aviv, 93, 151–153, 178, 282
- Telecoms, 85
- Teleoperations, 85, 141, 243
- Tesla, 173, 215, 236
 - driver-assisted vehicle, 267
- TimesUpp, 132
- Tokyo, 87
 - autonomous vehicles company in, 93
 - light rail, 10
 - megacity, 46
 - transportation, 152
- TomTom, 94, 233
- Toxic nitrogen dioxide, 29

- Toyota, 143, 236
- Traffic, 55, 204 (*see also* Vehicles)
 - cars, roads, and parking lots, 55–58
 - children and, 58–59
 - cities, 59–60
 - congestion, 23–24
 - jams, 14, 23–25, 108
 - light, 63–64, 67–68, 92–94, 103
 - planning, 252–254
 - reduction by sharing, 107–112
- Trafi, 131
- Trains, 117, 122–123
- Tram, 133
- Transport for London (TfL), 143, 151, 276
- Transportation, 8–9, 171–173, 245
 - policy, 11
 - spatial footprint of modes, 32
 - systems, 124
 - throughput of different modes, 31
- Travel, 3–8
 - options suggested by Moovit App, 135
- Travellers in Tokyo, 152
- Twitter, 142, 218
- Uber, 74, 76, 86–87, 109–111, 135, 142–143, 161, 174, 215, 217, 241
- UbiGo, 131, 217
- Udelv vehicles, 164
- UK Road Haulage Association, 175
- Urban utopias, 126–127
- Urbanisation, 52
- US Department of Transportation, 66
- V2X communication, 104
- Value added, 81–85
- Value chain, 288
 - elements, 139–145
 - investments, 144
 - mobility concept, 145–147
- Vans, 141
- Vehicle-to-everything
 - communication, 104
- Vehicle-to-infrastructure
 - communication, 83, 90, 104
- Vehicle-to-vehicle communication (V2V communication), 83, 102–104
- Vehicles, 64
 - design, 209
 - interiors 209–211
 - usage, 22–23
- Via, 74, 110, 131–132
- Villages, 177
- Virtual reality applications, 197
- Vision Zero, 68, 289
- ViveLaCar, 214
- Volkswagen, 143, 261
- Volvo, 269
- Walmart, 160, 162, 164
- Waymo, 140, 177, 218
- Waze, 217
- Wearables, 225
- Whim app, 129–130, 142, 217
- Wishes, 185–187
- Workers in Chicago, 12–13
- World Bank, 33, 111–112
- World Economic Forum, 33–34, 55, 163
- World Health Organization (WHO), 229
- World's Fair in New York (1939), 38
- Wunder Mobility, 132, 224–225
- Yutong, 161
- ZF, 160
- Zoom, 4
- Zoox, 163